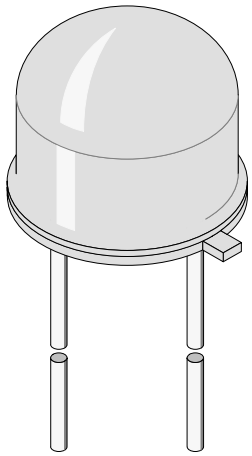
GaAs Infrared Emitting Diode with Metal Socket

Description

CQX19 is a high power GaAs infrared emitting diode in a special case, consisting of a solid metal TO–5 header with a molded clear plastic lens.
This allows the user to mount the device on a heatsink and thus reduce the thermal resistance to one tenth.
Unlike standard IR diodes, drive currents up to 250 mA DC or pulse currents up to 10 amps are possible.



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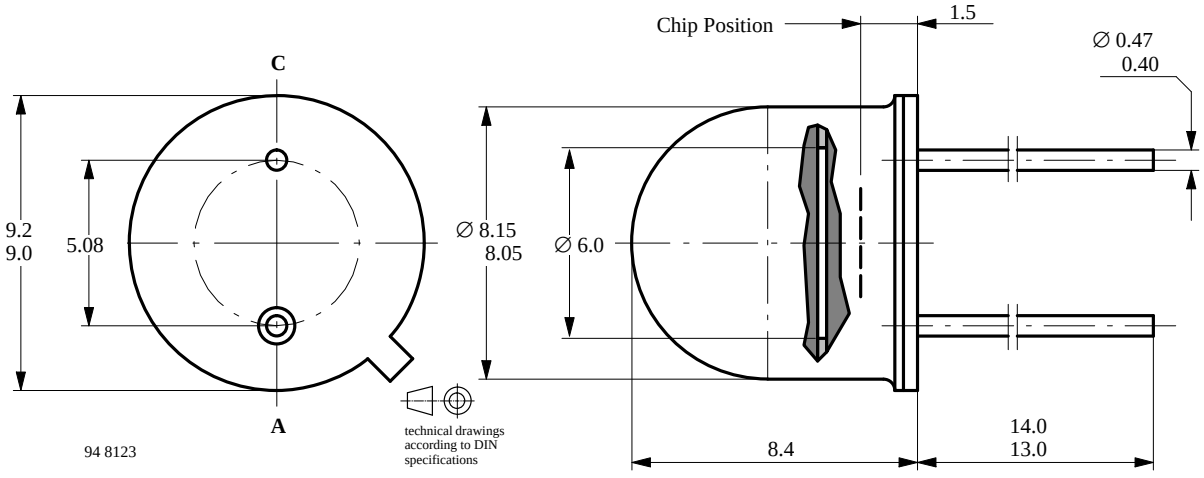
Features

- Extremely high radiant power
- High loading capability in pulse operation
- Suitable for pulse operation till 10 A
- Metal base with plastic lens white clear
- Angle of half intensity $\varphi = \pm 15^{\circ}$
- Peak wavelength $\lambda_p = 950$ nm

Applications

Radiation source in near infrared range, i.e. remote control, light barrier and telecommunication

Dimensions in mm



Absolute Maximum Ratings

T_{amb} = 25°C

Parameter	Test Conditions	Symbol	Value	Unit
Reverse Voltage		V_R	5	V
DC Forward Current		I_F	250	mA
Peak Forward Current	$t_p/T=0.001$, $t_p \leqq 20$ µs	I_{FM}	10	A
Power Dissipation		P_V	300	mW
Junction Temperature		T_j	100	˚C
Storage Temperature Range		T_{stg}	–25...+85	˚C
Thermal Resistance Junction/Ambient		R_{thJA}	250	K/W
Thermal Resistance Junction/Case		R_{thJC}	25	K/W

Basic Characteristics

T_{amb} = 25°C

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
Forward Voltage	I_F = 250 mA, $t_p \leqq$ 100 ms	V_F		1.2		V
Forward Voltage at Pulse Operation	I_F = 4 A	V_F		2.2	3	V
Breakdown Voltage	I_R = 100 µA	$V_{(BR)}$	5			V
Junction Capacitance	V_R = 0 V, f = 1 MHz, E = 0	C_j		600		pF
Radiant Intensity	I_F = 250 mA, $t_p \leqq$ 100 ms	I_e		40		mW/sr
Radiant Intensity	I_F= 4A, $t_p/T=0.0003$, t_p=20µs	I_e	330	500		mW/sr
Radiant Intensity	I_F=10A, $t_p/T=0.0003$, t_p=20µs	I_e		1000		mW/sr
Radiant Power	I_F = 250 mA, $t_p \leqq$ 100 ms	ϕ_e		20		mW
Radiant Power	I_F=10A, $t_p/T=0.0003$, t_p=20µs	ϕ_e		500		mW
Temp. Coefficient of ϕ_e		$TK_{\phi e}$		–1		%/K
Angle of Half Intensity		φ		±15		deg
Peak Wavelength	I_F = 100 mA	λ_p		950		nm
Spectral Bandwidth	I_F = 100 mA	Δλ		50		nm
Rise Time	I_F=1.5A, $t_p/T=0.01$, $t_p \leqq$100µs	t_r		700		ns
Fall Time	I_F=1.5A, $t_p/T=0.01$, $t_p \leqq$100µs	t_f		830		ns

Typical Characteristics (T_{amb} = 25°C unless otherwise specified)

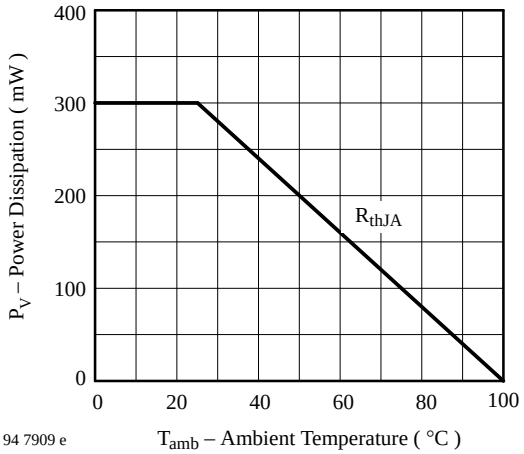


Figure 1 : Power Dissipation vs. Ambient Temperature

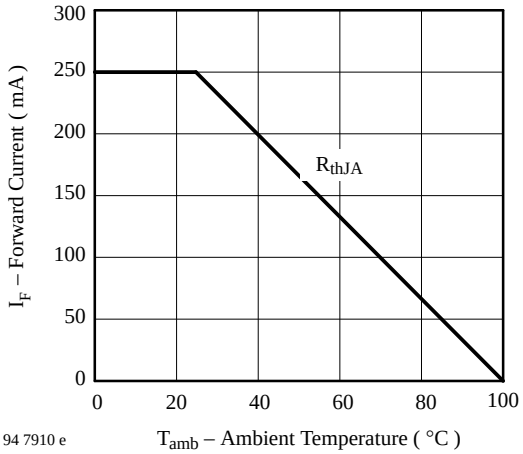


Figure 2 : Forward Current vs. Ambient Temperature

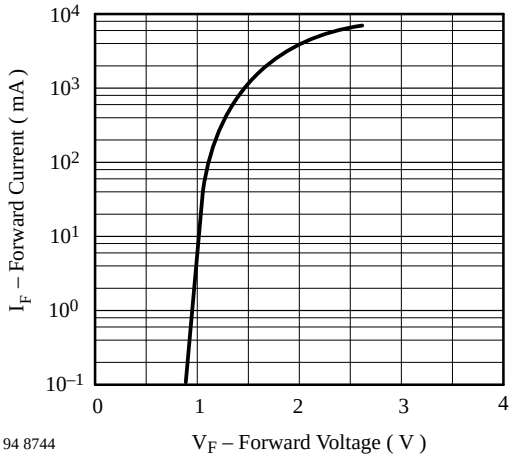


Figure 3 : Forward Current vs. Forward Voltage

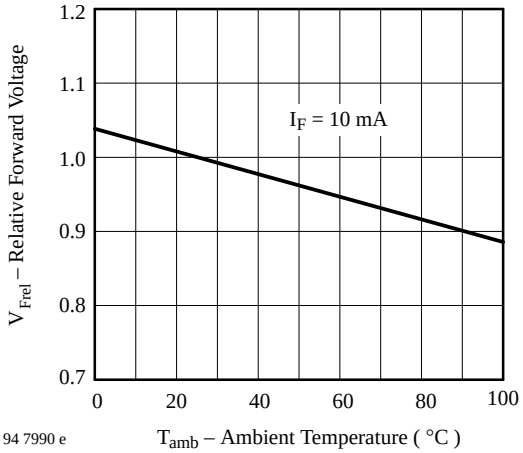


Figure 4 : Relative Forward Voltage vs. Ambient Temperature

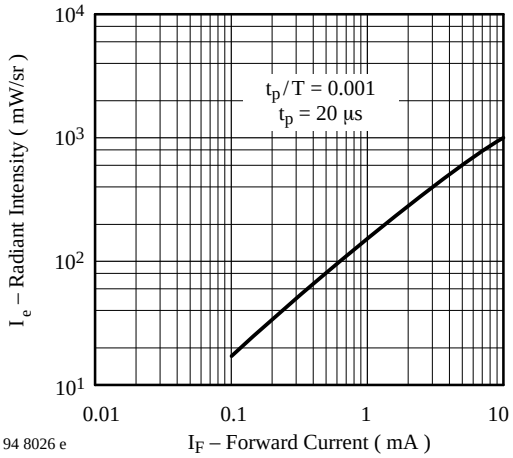


Figure 5 : Radiant Intensity vs. Forward Current

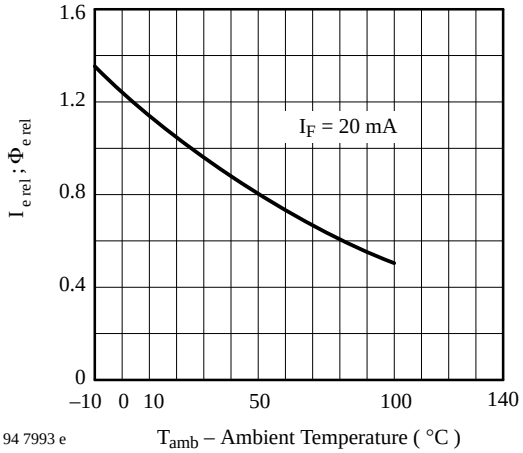


Figure 6 : Rel. Radiant Intensity\Power vs. Ambient Temperature

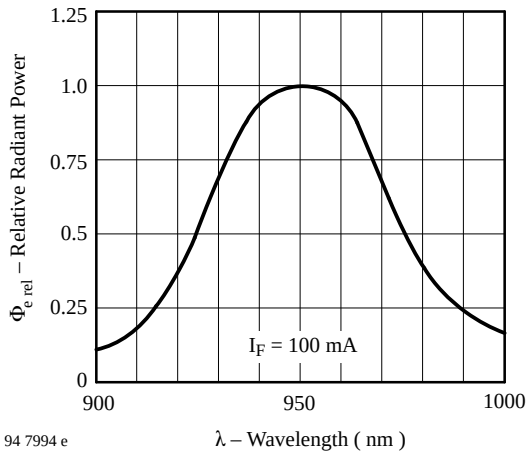


Figure 7 : Relative Radiant Power vs. Wavelength

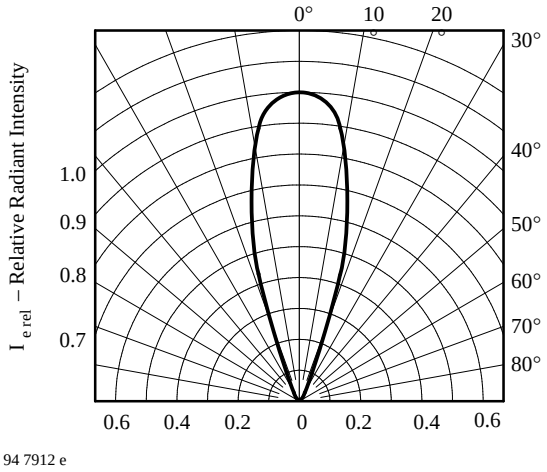


Figure 9 : Relative Radiant Intensity vs. Angular Displacement

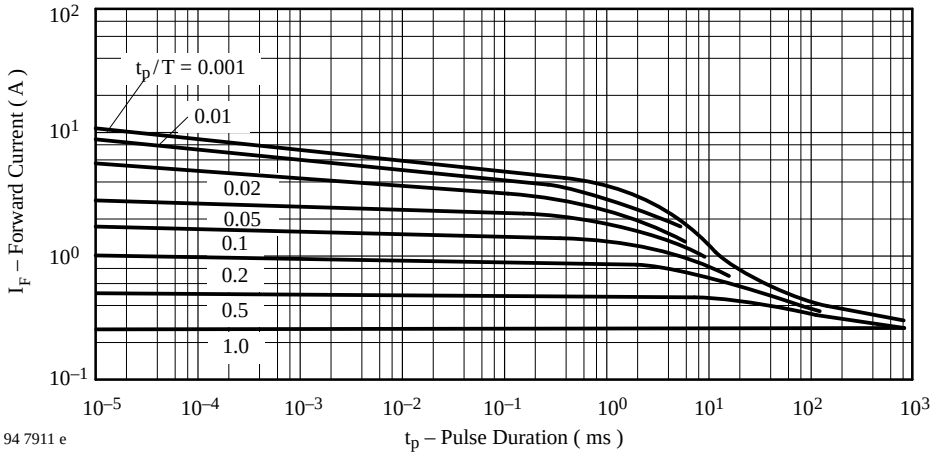


Figure 8 : Pulse Forward Current vs. Pulse Duration

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